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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,469	02/13/2004	Bianca Buchold	Buchold 8-1-10 (LCNT/1243)	5545
46363	7590	05/05/2006	EXAMINER	
PATTERSON & SHERIDAN, LLP/ LUCENT TECHNOLOGIES, INC 595 SHREWSBURY AVENUE SHREWSBURY, NJ 07702			GOLUB, MARCIA A	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/779,469

Applicant(s)

BUCHOLD ET AL.

Examiner

Marcia A. Golub

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 13-18 and 22-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 13-18 and 22-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/18/05 2/13/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION
Election/Restrictions

Applicant's election with traverse of claims 1-6, 13-18, 22-27 in the reply filed on 1/31/2006 and 3/30/2006 is acknowledged. The traversal is on the ground(s) that the restricted dependent claims depend on the generic independent claim and represent different embodiments of the same invention. This is not found persuasive because different embodiments would require different searches for multiple references, which would present an undue burden to the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 13-18, 22-24, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazarinov et al. (2004/0076208) hereinafter '208, and further in view of Appel et al. (5,659,414) hereinafter '414 and Sugiya (2004/0136053) hereinafter '053.

Regarding **claim 22**, Fig 3 of '208 discloses an external cavity laser comprising:

“a laser diode [300] for providing an optical signal;

a fiber grating [341] for reflecting at least a portion of said optical signal back toward said laser diode and transmitting the remaining portion of said optical signal;

'208 does not disclose an optical detector and a feedback controller. However paragraph 0004 of '208 discloses that selecting the maximum wavelength reflectivity of the grating to match with maximum gain of the laser diode would lock the output to a single wavelength and reduce the output noise. Also, Fig 2 of '414 discloses:

"an optical detector [52a, 54a] for detecting said reflected portion of said optical signal;" and a feedback circuit [72] for adjusting the current to the laser diode [52,54].

'414 does not disclose what type of feedback controller is used in the invention. However, Fig 2 of '053 discloses:

"a control unit [12] comprising a memory [17] for storing information and program instructions and a processor [16] for executing said instructions, said control unit adapted to perform the steps of:

determining the relative intensity noise of said laser diode from said detected optical signal; (the noise is determined from the power of the output)

and reducing a difference between a maximum gain wavelength of said laser diode and a maximum reflection wavelength of said fiber grating in a manner tending to reduce the relative intensity noise of said laser diode."

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '414 and '053 into the device of '208 by making/combining the external cavity laser diode with a detector and a feedback controller for at least the purpose of maintaining the wavelength of the laser diode matched to the reflectivity of the fiber grating and reducing the output noise of the laser.

Regarding **claims 15-18, 23, 24, 26, 27**, '208, '414 and '053 disclose an external cavity laser as described above:

15. wherein the difference between the maximum gain wavelength of said laser diode [300] and the maximum reflection wavelength of said fiber grating [341] is determined by said control unit [72,12] from said detected optical signal.

16. wherein said control unit [12] comprises a look-up table [database] in said memory [17] for correlating a difference between a maximum gain wavelength of said laser diode and a maximum reflection wavelength of said fiber grating with a corresponding relative intensity noise level, and the difference between the maximum gain wavelength of said laser diode and the maximum reflection wavelength of said fiber

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grating is determined by said control unit using said determined relative intensity noise and said look-up table.

17. wherein said control unit [72,12] is further adapted to generate a control signal to adjust the maximum gain wavelength of said laser diode [300] such that the difference between the maximum gain wavelength of said laser diode and the maximum reflection wavelength of said fiber grating is reduced.

18. wherein said control signal is adapted to adjust an amount of a current injection applied to said laser diode. (Fig 2 of '414, 6/30-32))

23. wherein said fiber grating [341] is etched near a guided-mode portion of an optical fiber [340] of said RIN controlled fiber grating type laser diode [300], said optical fiber [340] used for propagating optical signals of said laser diode [300]. (Fig 3 of '208)

24. wherein said fiber grating is formed in an optical fiber of said RIN controlled fiber grating type laser diode by exposing said optical fiber to a pattern of periodic intensity variations of high influence ultraviolet light. (formation of the grating is a product by process limitation which does not have a patentable weight in a device claim)

26. further comprising an optical isolator [20] located further downstream from said fiber grating for preventing optical signals from traveling upstream to said laser diode. (Fig 2 of '053)

27. wherein said optical detector [52a, 54a] is positioned at a front facet of said laser diode [52,54] for detecting the reflected portion of the optical signal. (Fig 2 of '414)

Regarding **claims 1-7 and 13**, the device disclosed by '208, '414 and '053 with regards to claims 15-18, 23, 24, 26, 27 above, teaches the functions and limitations of the method claims.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over '208, '414 and '053 as applied to claim 22 above, and further in view of Meltz et al. (5,042,897) hereinafter '897.

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Regarding **claim 25**, '208, '414 and '053 disclose an external cavity laser as described above, but do not disclose that the core of the fiber is doped with germanium, however, doping fiber with germanium is well known in the art as evidenced by '897, who discloses writing a Bragg grating by using ultraviolet light in a core of a fiber doped with germanium.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '897 into the device of '208, '414 and '053 by doping the core of the fiber with germanium for at least the purpose of making the fiber sensitive to ultraviolet light.

Contact Info

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia A. Golub whose telephone number is 571-272-8602. The examiner can normally be reached on M-F 9-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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